

BENCHMARKS

VOLUME 6 NUMBER 5

NORTH TEXAS STATE UNIVERSITY

MAY 1985

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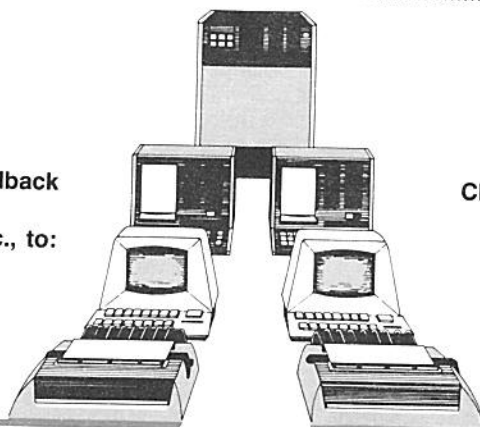
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BENCHMARKS Reader/User feedback is encouraged.

Send all letters, suggestions, etc., to:
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Denton, Texas 76203



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SERVICES AVAILABLE TO USERS OF THE NTSU COMPUTING FACILITIES

The NTSU Computing Center is located in the Information Sciences Building, Room 119. Telephone: (817) 565-2324.
HELP DESK phone: 565-4050.

INFORMATION AND ID CODES - Carolyn Goodman

BENCHMARKS QUESTIONS/CONTRIBUTIONS, ETC. - Claudia Lynch

STATISTICAL/RESEARCH SUPPORT - George Morrow, Scott Barber, Claudia Lynch, Dave Molta, Panu Sittiwong

STUDENT PROGRAMMING PROBLEMS - CSCI Department, Room 542A, GAB
BCIS Department, Room 152, BA

JCL PROBLEMS - Help Desk

PRE-RESEARCH COUNSELING - George Morrow, Scott Barber, Dave Molta, Panu Sittiwong, Claudia Lynch

DATA ENTRY & KEYPUNCH - Betty Grise

TEST SCORING & ANALYSIS - Betty Grise

DISK SPACE PROBLEMS - Carolyn Goodman

PASSWORD AND OPERATING SYSTEM PROBLEMS - Help Desk

ADMINISTRATIVE APPLICATIONS - Coy Hoggard

COMMUNICATION/TERMINAL PROBLEMS - Help Desk

PRINTOUT RETRIEVAL - RJE Operators

DIALING UP NTSU COMPUTERS OVER THE TELEPHONE

Phone numbers for the Local Area Network (LAN) are:

300/1200 BAUD: (817) 565-3300, 565-3499
300 BAUD: D/FW METRO 429-6006

The numbers that will accept either 300 or 1200 baud communications have an autobaud feature that requires the user to hit the <RETURN> key repeatedly until the receiving modem can determine the appropriate baud rate. The METRO telephone number is for 300 baud communications only. After a communications link has been successfully established, the user will receive the # prompt. At this point, it will be necessary to issue the appropriate CALL command to connect with a computer.

CALL 8040 will connect with the NAS/8043 (for MUSIC access)
8050
8060

CALL 3270 will connect with the NAS/8043 through the 3270
3280 protocol converter

CALL A780 will connect with VAX system A
CALL B780 will connect with VAX system B

CALL 2000 will connect with the HP-2000 computer

HOURS FOR NTSU COMPUTER ACCESS AREAS

SUMMER SESSIONS: June 5 - August 16, 1985

<i>Location</i>	<i>Days</i>	<i>Status</i>
Computing Center RJE	Monday-Saturday Sunday	OPEN 7:30 a.m. Monday - Midnight Saturday OPEN Noon - Midnight
ISB 110 Terminal Area	Monday - Thursday Friday Saturday Sunday	OPEN 7:30 a.m. - 10 p.m. OPEN 7:30 a.m. - 6 p.m. OPEN 8:30 a.m. - 7 p.m. OPEN 2:00 p.m. - 10 p.m.
College of Business	Monday - Thursday Friday Saturday, Sunday	OPEN 8:15 a.m. - Midnight OPEN 8:15 a.m. - 8 p.m. OPEN 12:15 p.m. - Midnight
Room 550C, GAB	TO BE ANNOUNCED ...	

NEW POLICIES,
PROCEDURES,
AND OTHER
IMPORTANT
STUFF

Benchmarks Has a New Look

By Claudia Lynch, *Benchmarks* Editor

You may have noticed last month that *Benchmarks* looked a little different. That is because it was *typeset* in the Print Shop, rather than just being printed and copied as it has been in the past. Be prepared for more changes in our looks and format, as we experiment with cost/work reducing measures.

Laser Printing and Turnaround Time

By Thomas Wm. Madron, Manager of Computer Services

If you have been using the Laser Printer in the ISB you have undoubtedly noticed that turnaround time can frequently be rather slow, even when the actual execution time of your program on the NAS/8043 or the NAS/6650 was only a few seconds or minutes. The reasons for this phenomenon can be clearly seen in Figures 1 and 2—both academic and administrative computer users are sending more and more printing to the laser.

Figure 1: 6650 Printing Trends
Moving Averages and Predicted Trend

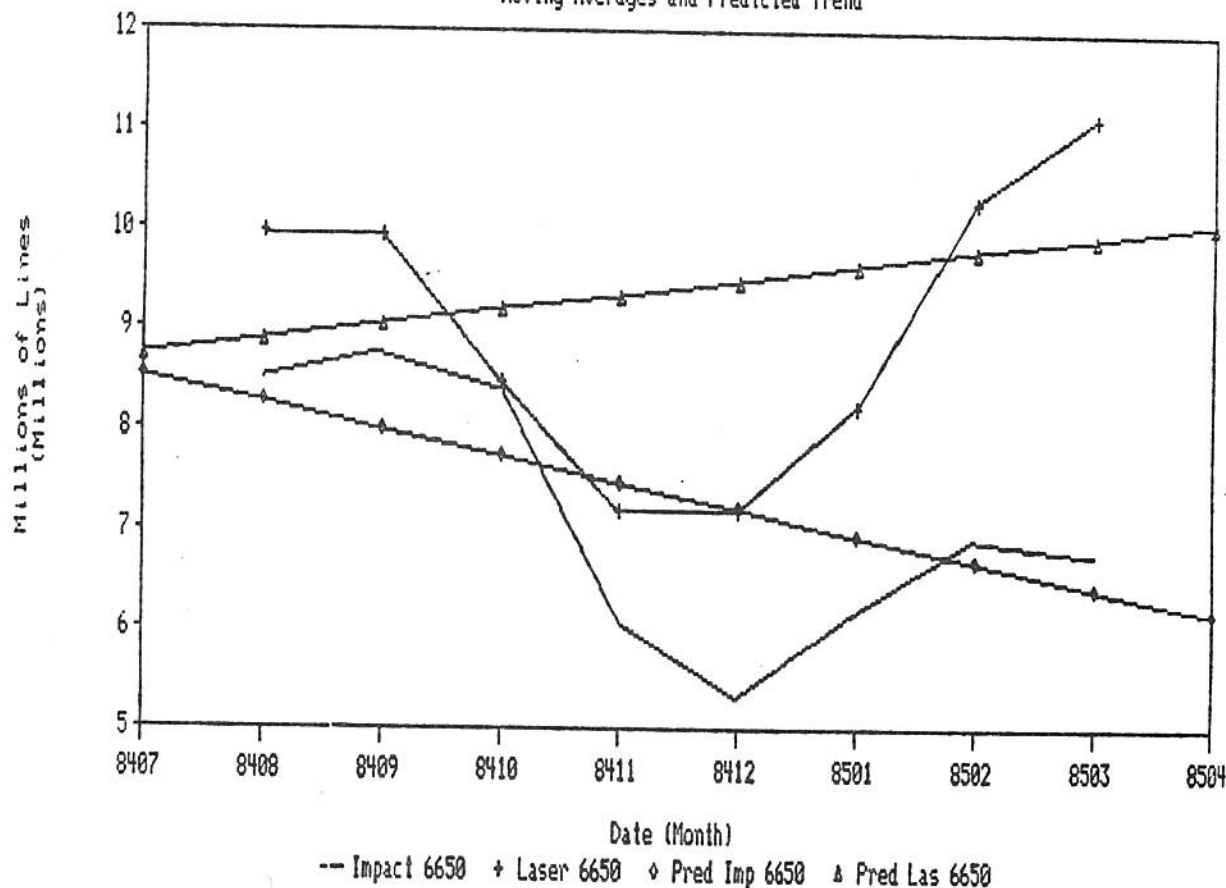
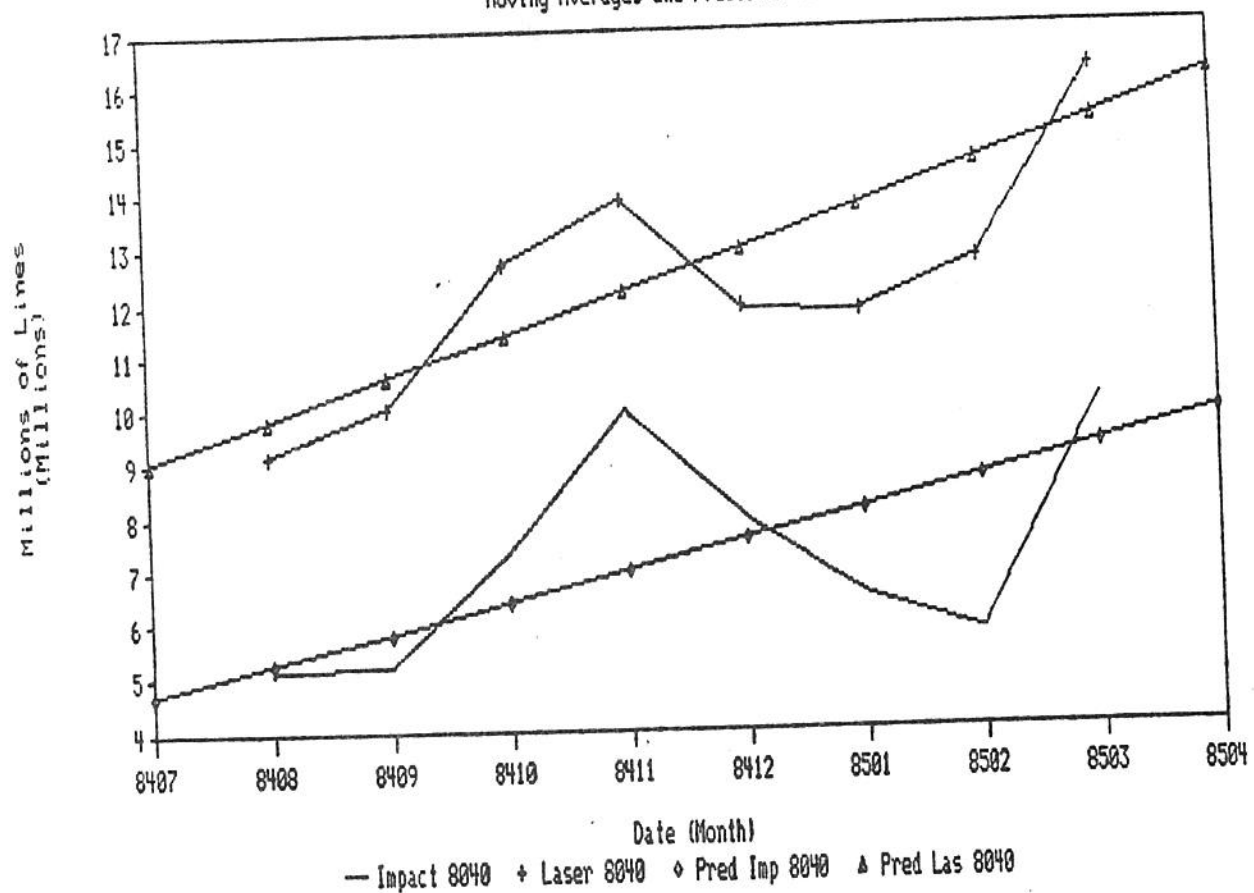


Figure 2: 8040 Printing Trends
Moving Averages and Predicted Trend



The lines in both figures depict the number of lines printed (in millions of lines) from July, 1984 through April, 1985. In the case of administrative users on the NAS/6650, the use of the laser printer is displacing the use of impact printing. Academic users, in contrast, are simply printing more on all printers. The straight lines on the figures are predicted values using linear regression, while the other lines are slightly smoothed versions (using a three month moving average) of the original data.

Clearly all users prefer the laser printer to the impact printers. The moral of all this is, however, that until the University can obtain additional laser printing capability, the contention for the existing laser printer will be substantial. During periods of highest use (toward the end of each semester) it will be the better part of valor to route output to one of the impact printers if you wish faster turnaround.

Computing Center Short Courses, Summer I

The Computing Center is offering the first in a series of short courses this semester. These courses will be held in Room 110 of the Science and Technology Library (ISB) unless otherwise noted. Following are the dates and times for each course. Please pre-register to attend. Only 20 people will be admitted per section. Courses marked with * require knowledge of the MUSIC Context Editor. THE COMPUTING CENTER RESERVES THE RIGHT TO CANCEL COURSES WITH LESS THAN 5 PEOPLE PRE-REGISTERED.

1. Three separate 2-hour introductory sessions on the MUSIC interactive operating system, using the 3270 Protocol Converter to do FULL-SCREEN EDITING on MUSIC.

Monday, June 17	: 10 a.m. - Noon	Instructor: Janice Green
Wednesday, June 19	: 6 - 8 p.m.	Instructor: Janice Green
Friday, June 21	: 3 - 5 p.m.	Instructor: Janice Green

2. A 2-hour introductory session on SPSS-X.*

Friday, June 21	: 10 a.m. - Noon	Instructor: Scott Barber
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3. A 2-hour introductory session on SAS.*

Tuesday, June 18	: 3 - 5 p.m.	Instructor: Panu Sittiwong
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4. A 2-hour introductory session on Waterloo/SCRIPT.*

Thursday, June 20	: 3 - 5 p.m.	Instructor: Claudia Lynch
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5. A 2-hour session on Job Control Language (JCL) - To be held in the Academic Computing Services Conference Room ISB 123 (in the Computing Center Office Area).

Thursday, June 20	: 10 a.m. - Noon	Instructor: George Morrow
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6. A 3-hour session introducing VAX Utilities and Commands - To be held in the Academic Computing Services Conference Room ISB 123 (in the Computing Center Office Area) for the first two hours.

Wednesday, June 19	: 9 a.m. - Noon	Instructor: Ron Brashear
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A registration form for these short courses is included at the end of this issue.

Open House Schedule

The following open house schedule has been established for the Fall and Spring semesters. THERE WILL BE NO OPEN HOUSE DURING THE SUMMER SESSIONS.

FALL '85: Wednesday and Thursday, September 18, 19.
 SPRING '86: Wednesday and Thursday, January 29, 30.

Tour size will be a maximum of 10 persons per group. Tours of the mainframe machine area will be limited to the aisle-ways near the entry door, down the south wall of the room, and at the south entrance to the disk room. An informational hand-out will be available, which will include a floor plan of the machine room.

IDA Statistical Package Available on MUSIC

By Bob Brookshire, Manager of Academic Computing

IDA, the Interactive Data Analysis and Forecasting System, is now available under the MUSIC operating system. Former users of the HP-2000 computer will remember the version of the program available there, which is the original (ca. 1973) version of the program. The version on MUSIC is much improved. It is written in FORTRAN rather than BASIC, and is now distributed and supported by SPSS, Inc. The MUSIC implementation is provided by the Service de l'informatique, Université de Sherbrooke, Quebec, Canada.

The strength of IDA is in providing statistical techniques for the analysis of data collected on the same observational units over time. These techniques are called *time series analysis*, and commonly include methods for forecasting the future behavior of the observational units from the data being analyzed. This type of analysis violates many of the assumptions behind traditional statistical analysis, and requires many specialized procedures not found in other statistical packages.

For the time series analysis of one variable, IDA provides procedures for measuring autocorrelation, serial correlation, and homogeneity of variance, as well as calculating runs checks and the Durbin-Watson statistic. Multivariate time series procedures include ordinary least squares regression, Box-Jenkins analysis, the Cochrane-Orcutt model and two-stage least squares.

BENCHMARKS

Time series analysis is not the only type of statistics IDA performs, however. The package includes standard univariate and bivariate descriptive statistics, t-tests, one-way univariate and multivariate analysis of variance, Spearman's rank correlation, the Mann-Whitney U test, and the Kruskal-Wallis one-way analysis of variance.

IDA provides extensive help to the user in several ways. The HELP command can be used at almost any point in the program. Each time the user types a valid IDA command, the program asks "WANT EXPLANATION?" A reply of "yes" to this prompt generates an explanation of the command. In addition, the INFO command provides detailed explanations of IDA and its use.

Documentation for IDA is provided in three manuals, all published by The Scientific Press/McGraw-Hill. *IDA: A User's Guide to the IDA Interactive Data Analysis and Forecasting System* (1982), by Robert F. Ling and Harry V. Roberts, is the basic manual which explains how to use the program. *Conversational Statistics with IDA*, by Roberts and Ling (1982), provides an introduction to data analysis and statistics, using IDA for the examples. *Time Series and Forecasting with IDA* (1984), by Roberts, is a text on time series analysis which uses IDA to illustrate the methods. These books can be purchased direct from McGraw-Hill or ordered through the University Store, and are in the reference section in the Science and Technology Library in the Information Science Building.

SAS Upgraded to Version 5

The version of SAS (82.4) that was running on the NAS/8043 since last year has been upgraded to the latest release, dubbed Version 5. The 82.4 version will be kept, as a backup, until July 1. You can access it by putting // EXEC SAS824 in your job stream. Listed below are some changes and enhancements that are features of SAS Version 5. The output of some of the procedures seems to be formatted a little differently on the page, which could make a difference to some users. The Version 5 manuals will be available at the University Store in the near future.

GENERAL CHANGES:

- | | |
|-------------------------|---|
| SAS Language: | <p>Numbered variable lists can be specified in ascending or descending order (X1-X5 or X5-X1).</p> <p>Many statements and options now require that character strings be enclosed in single or double quotes.</p> <p>Prefix variable lists are available in most procedures. Specifying the first letters of a variable name followed by a colon (:) refers to all variables beginning with those letters.</p> |
| SAS Statements: | <p>The following statements have been changed in some way - ARRAY, DO, END, INPUT, PUT, HELP, RUN, TITLE.</p> <p>DROP, KEEP - are not available in the PROC step; use the DROP= and KEEP= data set options instead.</p> |
| New SAS Functions: | <p>ERFC - is the complement to the ERF function.</p> <p>DIM - returns number of elements in an array.</p> |
| New SAS System Options: | <p>IMPLMAC/NOIMPLMAC - controls whether macros defined as statement-style macros can be invoked with statement-style macro calls.</p> <p>MPRINT/NOMPRINT - controls printing of SAS macro statements generated by macro executing.</p> <p>PROBSIG= - controls formatting of p-values in statistical procedures.</p> |
| SAS Procedures: | <p>The following SAS procedures have been changed in some way - APPEND, BROWSE, CALENDAR, CONTENTS, COPY, DATASETS, EDITOR, FORMAT, MEANS, PDSCOPY, SUMMARY, TABULATE, TRANSPOSE, ANOVA, CANCELL, CLUSTER, FACTOR, FASTCLUS, FREQ, GML, NLIN, RANK, REG, RSQUARE, STANDARD, TREE, VARCLUS, VARCOMP.</p> <p>PROC DELETE is no longer available.</p> |
| New SAS Procedures: | <p>COMPARE - compares values of variables in two SAS data sets and reports any differences.</p> <p>ACECLUS - (Approximate Covariance Estimation for CLUstering) obtains approximate estimates of the pooled within-cluster covariance matrix when clusters can be assumed multivariate normal with equal covariance matrices.</p> |

LIFEREG - fits parametric models to failure-time data that may be right censored.
 LIFETEST - can be used with data that may be right censored to compute non-parametric estimates of the survival distribution and to compute rank tests for the association of the response variable with other variables.

New SAS Statements: ATTRIB - allows you to specify the format, informat, label, and length of a SAS variable in a single statement.
 FOOTNOTE - prints footnotes at the bottom of the page; text must be enclosed in quotes.
 %PUT - automatically invokes the %PUT statement from the SAS macro language, unless the NOMACRO option is specified.
 FREQ - specifies a numeric variable on the input SAS data set which causes each observation to be assumed to represent n observations, where n is the value of the FREQ variable.
 WEIGHT - specifies a numeric variable on the input SAS data set, the values of which are used to weight each observation.
 SELECT - selects one of several statements to be executed.

ETS Procedures: The following SAS/ETS procedures have been changed in some way - AUTOREG, ARIMA, COMPUTAB, FORECAST, SIMLIN, STATESPACE, SYSLIN, X11.

The MODEL, SYSNLIN, and SIMNLIN procedures have been completely rewritten. A number of features have been added and several outstanding problems corrected.

The TIMEPLOT procedure is now documented in *SAS User's Guide: Basics*.

New ETS Procedures: PDLREG - estimates parameters when the model involves distributed lag effects for independent variables.

New ETS Functions: There are two new financial functions for calculating depreciation.

SAS/OR Procedures: The following SAS/OR procedures have been changed in some way - CPM, LP.

The TIMEPLOT procedure is now documented in *SAS User's Guide: Basics*.

SPSS-X Upgrade Imminent

Soon, the latest version of SPSS-X (2.1) will replace the one we are currently running, Release 2.0. You may have used the test release of this version already, last semester, when we were functioning as a test site for SPSS Inc. Watch MUSIC News and your SPSS-X printouts for the exact conversion date. The SPSS-X INFO facility will contain all the information about what is new in Release 2.1.

ISSUE Proceedings Available for Perusal

The Computing Center has recently acquired the proceedings of the seventh SPSS Users and Coordinators Conference, which was held in July of 1984 in Chicago. This conference was sponsored by the International SPSS Software Users Exchange (ISSUE), and the proceedings contain many articles that may be of interest to people who either use or need to use a statistical package. For example, there are articles on such topics as "Repeated Measures Analysis Using SPSS-X MANOVA: A Tutorial," "Using LISREL to Improve Prediction with Multicollinear Predictors," and "A (Relatively) Painless Approach to Teaching/Learning SPSS-X." If you are interested in examining this book, come by the Computing Center offices (ISB 119) and ask to see it. We won't let you take the book home, but you can copy articles from it if you like.

Tape Management System Receives Top Honors

According to the April 22, 1985 issue of *COMPUTERWORLD*, Uccel Corporation's UCC-1 (our tape management system - TMS) was awarded the prestigious \$50 Million Award by International Computer Programs Incorporated (ICP). This award signifies that UCC-1 achieved at least \$50 million in aggregate sales, and implies a corresponding excellence in the design and function of the software.

Staff Happenings

Tom Madron, Manager of Computer Services, chaired a panel discussion entitled "Social Change in the Information Revolution" at the annual meeting of the Southwest Social Science Association in Houston, March 22. Bob Brookshire, Manager of Academic Computing, was a discussant at the meeting's panel entitled "Political Orientations and Political Activism." Dr. Madron also participated in the University of Tulsa Computer Science Colloquium Series, where he presented two talks entitled "Local Area Networks - A Briefing" and "Technical Issues in Local Area Network Design."

MICROCOMPUTERS

New Feature in Benchmarks

MicroBits is a new monthly feature of *Benchmarks*, provided by the Microcomputer Maintenance Shop GAB 529, Ext. 2387. Any questions or suggestions about topics appearing therein should be directed to Mike Flanery in that department.

MicroBits: Micro News You Can Use

By Mike Flanery, Manager of the Microcomputer Maintenance Shop

"MicroBits" is produced by the Microcomputer Maintenance Shop (the MMS) and is intended to help you work better with your microcomputer. It is not a technical bulletin; rather it is a monthly column which will discuss aspects of microcomputers which are of direct and daily concern to you. We will be presenting "MicroBits" monthly and you can get a copy either by subscribing to *Benchmarks* or by contacting the MMS. We welcome any comments or suggestions you may have about "MicroBits," including any information you think might be important to other microcomputer users. Future topics for "MicroBits" include "All About Disk Drives," "RAM Upgrade Options," and "The Importance of Backups."

"The Microcomputer Maintenance Shop"

I would like to introduce myself and the MMS to those of you who are not familiar with us. My name is Mike Flanery and I am the Manager of the MMS. Basically the MMS is a service unit within the Computer Science Department which is responsible for the proper functioning of many of the microcomputers on campus. The overall operation of the MMS is supervised by Jim Curry of the CSCI faculty. When you have a problem, we will do our best to get your machine back "up" within 90 minutes. When you call, you will probably talk to Yvonne, our faithful secretary. She will want to get some information about your machine. Please have ready for her the NTSU inventory number, the model of the machine, its location, who is responsible for it and the nature of the problem. Yvonne will arrange for a technician to handle your problem. Either myself or our dedicated technician, Simon Gray, will fix you up.

The MMS is responsible for maintaining the following equipment (all of which must have an NTSU inventory number):

1. TIPCs
2. TI Omni 800 series dot-matrix printers (the TI Omni 850, for example).
3. TI 990s in CSCI and COBA.
4. TI 99/4A computers and their associated peripherals.

We also install newly purchased options from the equipment manufacturers. For example, if you ordered a "SIMS" board for your TIPC we would happily install it for you. All the above mentioned services are done with no charge to your department for our services or for replacement parts.

Office Automation News

by Sandy Franklin, Office Automation Specialist

Many users of the Texas Instruments Professional Computer (TIPC) have been requesting information about magazines or newsletters that focus on such topics as TIPC software and the effective use of the TIPC. Following are some publications that address those and many other issues.

Copies of all these magazines except *Professional Computer News* are available in my office, ISB 240.

DirectTions Magazine - is distributed to members of TI-MIX, the Texas Instruments Mini/Microcomputer Information Exchange. To request a membership application, write to TI-MIX, P. O. Box 2909, MS 2200, Austin, TX 78769. The magazine is published 12 times a year by TI-MIX and is sent free to TI-MIX members. Nonmember subscription price is \$30.00 per year. Membership in TI-MIX is \$15.00 for one year, \$25.00 for two years, and \$40 for three years.

TI Professional Computing - is published by Publications & Communications, Inc. Write to the publisher at 12416 Hymeadow Dr., Austin, TX 78750 to obtain subscription information. The January 1985 issue states subscriptions are available for \$39/year.

Home Computer Magazine - is available by subscription and can be ordered by calling this toll-free telephone number: 1-800-828-2212. It is published monthly by Emerald Valley Publishing Co., P. O. Box 5537, Eugene, OR 97405. Subscriptions rates are \$25 for one year, \$45 for two years, and \$63 for three years. (I asked TI to send sample copies of these magazines, and this one appeared to be geared toward public domain computer programs for the Commodore 64, the Apple, the IBM PC, IBM PC Jr., and the TI 99/4.)

Professional Computer News - is distributed through TI Professional Computer dealers nationwide. Additional information can be obtained by writing to the publisher, Steve Davis Publishing, P. O. Box 190831, Dallas, TX 75219. (I did not receive a sample copy of this magazine.)

This information was published in the *Texas Instruments Learning Center Newsletter*. If you would like to be put on their mailing list, their address is: TI Learning Center Newsletter, P. O. Box 225012, MS 84, Dallas, TX 75265 ATTN: Newsletter Editor.

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*   O P E R A T I O N S   *
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Disk Backup Schedules

Backup Schedule for OS/MVS

OS/MVS disk packs (academic and administrative) are backed up daily, Tuesday through Saturday, from 4-6:30 a.m., and Sunday from Midnight to 3 a.m. A backup of all the operating systems on the NAS machines and their contents is done once every two weeks at some low activity period over a weekend.

MUSIC Backup Hours

A message will be sent to all users signed on to MUSIC approximately 10 minutes before backups are begun. It will be in the form ** MUSIC SHUT DOWN AT xxxx AM - SCHEDULED BACKUP **. To find out the backup hours while signed on to MUSIC, enter HELP HOURS. The following backup schedule is currently in effect:

Tuesday	3 a.m. (for about 3 hours)	Weekly backup
Wednesday - Saturday	4 a.m. (for about 2 hours)	Daily backup
Saturday	Midnight (for about 2 hours)	Daily backup

VAX Backup Schedule

Incremental backups of both VAX systems are performed Monday through Thursday at 4 p.m. Users do not have to log-off, but any files that are open at the time of the backup will NOT be backed up.

Full backups of both systems are done every Friday beginning at 8 a.m. These generally will take all day to complete. Again, users do not have to log-off, but any files that are open will not be backed up.

A "Stand Alone" backup of the system disk is done the third Tuesday of every month, in the afternoon, just before preventive maintenance. This procedure makes a copy of the system disk that can be used to restore its contents if the disk is completely destroyed. The system will be shut down; watch the system log-on message for specific times and dates.

NOTE: No backups are taken on the weekends. Requests for restoration of files should be made via MAIL to the username OPERATOR. Your file can only be restored if it existed before the last backup was done.

NAS/8043 Performance Statistics for April

SYSTEM	SCHEDULED OPERATING HOURS	PLANNED MAINT. HOURS	PLANNED PRODUCTION HOURS	UNPLANNED MAINT. HOURS	PRODUCTION HOURS ACHIEVED	SYSTEM UPTIME
VM/SP3	720	3.30	716.70	8.51	708.19	98.8%
MUSIC	720	31.93	688.07	16.42	671.65	97.6%
MVS/JES2	720	3.87	716.13	13.99	702.14	98.0%
COMPLETEA	720	3.90	716.07	14.57	701.50	98.0%

The NAS/8043 CPU achieved 100% uptime. The NAS/7360 DASD achieved 99.6% uptime. The NAS/7350 DASD achieved 98.8% uptime.

System Uptime = (Production Hrs. Achieved)/(Planned Production Hrs.)

Production Hrs. Achieved = (Planned Production)-(Unplanned Maint.)

Scheduled Operating Hrs. = (Planned Maint.) + (Planned Production)

MUSIC Planned Maintenance Hours include 28.15 Hrs. system backup.

Lost productivity is calculated as the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled operation. Lost productivity hours were contributed to by the following key causes:

CPU, Tape, and Disk Subsystems (NAS)

1. 7835 DKC-Port 2 Failure after Power Surge	6.83 HOURS
2. 7860 DASD DKC-1 Failure after Power Surge	2.80
3. Relocate Operator's Console Area	2.25
4. Upgrade Main Storage to 16 Meg	1.68
5. 7350 DASD Failures	1.58

TOTAL 15.14 HOURS

Terminal Control System (IBM)

1. 3272 Terminal Controller Failures	2.39 HOURS
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Miscellaneous

1. Undetermined Causes for Systems Restarts	2.58 HOURS
2. VM/SP3 System Tuning/Improvements	1.90
3. UPS Failure (2000 Volt Power Surge During Severe Thunderstorm)	1.20

TOTAL 5.68 HOURS

GRAND TOTAL 23.21 HOURS

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*   TECHNICAL   *
*   SUPPORT     *
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Program Hit Parade

The following programs were used the most frequently during the month of April.

TOP TEN PROGRAMS IN TERMS OF FREQUENCY OF RUNS

<i>Program</i>	<i>Description</i>	<i>Number of Runs</i>
1. IEWL	Linkage Editor	28164
2. PGM=*DD	Compiled Program	27349
3. IKFCBL00	VS COBOL Compiler	21472
4. IEBGENER	IBM Utility	15131
5. IEFBR14	IBM Null Utility	13144
6. IFOX00	System Assembler	12576
7. SCRIPT	Waterloo SCRIPT	10846
8. SASLPA	SAS	8639
9. PTPCH	Data Set Lister	8551
10. FASTLOAD	Model204 Utility	6204

TOP TEN PROGRAMS IN TERMS OF CPU SECONDS USED

<i>Program</i>	<i>Description</i>	<i>CPU Seconds</i>
1. PGM=*DD	Compiled Program	116900
2. SASLPA	SAS	48974
3. IKFCBL00	VS COBOL Compiler	36965
4. IFOX00	System Assembler	36314
5. SCRIPT	Waterloo/SCRIPT	24198
6. PTPCH	Dataset Lister	15649
7. IEWL	Linkage Editor	12953
8. SPSS	SPSS-X	11407
9. FASTLOAD	Model204 Utility	9446
10. DAG01	User Program	6047

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*   V A X E N   *
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New VAX System Manager Chosen

Ron Brashear, currently an Educational Specialist with Digital Equipment Corporation (DEC) in Dallas, will become the new VAX System Manager on June 13. Ron has lots of teaching experience. He has been teaching seminars on various aspects of VAX/VMS for DEC (including System Management), and was an Assistant Professor of Mathematics and Computer Science at New Mexico Military Institute from 1980 through 1984. Ron is an avid tennis and racquetball player, and he and his wife, Dorcas, have two children. Come by and get acquainted with Ron, his office is ISB 129.

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* INFORMATION
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NAS/6650 Performance Statistics for April

SYSTEM	SCHEDULED OPERATING HOURS	PLANNED MAINT. HOURS	PLANNED PRODUCTION HOURS	UNPLANNED MAINT. HOURS	PRODUCTION HOURS ACHIEVED	SYSTEM UPTIME
MVS/JES2	720	1.85	718.15	23.57	694.58	96.7%
COMPLETEA	278	0.00	278.00	5.93	272.07	97.9%
ADABASA	720	13.85	706.15	25.42	680.73	96.4%

The NAS/6650 CPU achieved 99.9% uptime. The NAS/7360 DASD achieved 100% uptime. The STC 8650 DASD achieved 99.0% uptime. ADABASA'S planned maintenance hours include 11.88 hours for system backup maintenance. Please consult the NAS/8043 Performance Summary for an explanation of cell entries. It can be found under the OPERATIONS section of this newsletter.

Lost productivity is calculated as the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled operation. Lost productivity hours were contributed to by the following key causes:

CPU, Tape, and Disk Subsystems (NAS)

1. Relocate Operator's Console Area	1.97 HOURS
2. Memory Board Failure in Main Storage	1.03
TOTAL	3.00 HOURS

DASD Subsystems (STC)

1. 8650 DASD Corrective Maintenance	6.98 HOURS
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Terminal Control System (COMTEN)

1. Microprocessor Failed in 3690 TCU after an electrical power Surge	2.20 HOURS
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Terminal Control System (IBM)

1. 3272 Terminal Controller Failures	11.12 HOURS
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Miscellaneous

1. Undetermined Causes for System Restarts	0.79 HOURS
2. ADABASA System Tuning/Improvements	0.75
3. COMPLETEA System Failures	1.31
4. COMPLETEA System Tuning/Improvements	2.00
5. Power Failure in ISB on I/O Equipment	1.55
6. UPS Failure (2000 Volt Power Surge)	1.18
TOTAL	7.58 HOURS

GRAND TOTAL 30.88 HOURS

COMPUTER HUMOR

One More Time ...

Due to a typesetting/editing problem, the entire text of "The Killion" did not make it into print last month. We hope to do better this month. Read on to find out if we did.

*The Killion**

By Ian Frazier

At a little after noon on Friday, August 6th, Marcie Chang, anchorwoman on TV 8's "Newsbusters" evening news show picked up her envelope at the pay window on the studio's fifth floor, bought a ham-salad sandwich and a cup of coffee from the lunch wagon in the hall, and took the elevator back to her office on the tenth floor. Sitting down at her desk, she tore open the envelope, which contained the first payment of the lucrative new contract that the station had offered her in the spring. She took one look at the check and collapsed. She was dead before her face hit the desk top. A few minutes later, TV reporter Kerri Corcoran, a colleague and friend, came into Marcie's office, saw her, looked at the check she still held in her hand, and crumpled, lifeless, to the floor. The same fate met the receptionist who came to Marcie's office to find out why she wasn't answering her phone, and the building security guard, who was summoned by the cleaning woman after she had noticed the pile of bodies.

Nor was that the end. In quick succession, three police officers, a fireman, a newspaper reporter, and a pathologist from Mount Sinai were added to the death list. Alarmed public-health officials called on the Institute for Catastrophe Control, in Princeton. With grim predictability, two of the institute's top scientists soon showed the seriousness of the challenge when they, too, were felled. Within forty-eight hours, scientists from the institute who had taken over the case were fairly certain that the fatal agent was the check that Marcie had picked up that Wednesday afternoon. They examined it through heavily tinted safety glasses, in sections, with no one scientist viewing the entire check. Within another forty-eight hours, Dr. Leo Wiedenthal, director of the institute, knew what he had on his hands. In a statement released to the press, he said that there was no evidence of a supertoxin or highly contagious disease on the fatal paycheck. Rather, he said, "Marcie Chang and the eleven other victims almost certainly died as a result of what they saw on the check. Through a computer error, Marcie's check was made out to an extremely high number. Apparently, the computer made Marcie's check out to the sum of one killion dollars. The killion, as every mathematician knows, is a number so big that it kills you."

Since the days of Archimedes, man has known that numbers could attain great size. The Greeks could count up to a million, and the Romans, in their turn, made it to a billion and a trillion. Then man had to wait almost fifteen centuries, until the gilded arms of the Renaissance had flung open the shutters of the Dark Ages, before he could move on to a billion trillion, a million billion trillion, and, finally, a zillion. In 1702, Sir Isaac Newton, father of the theory of universal gravitation, experimented with numbers as high as a million billion trillion zillion, at one point even getting up to a bazillion. These experiments convinced him of the theoretical possibility of the killion. He stopped his experiments abruptly when, as the numbers approached one killion, he found himself becoming very sick. The German mathematician Karl Friedrich Gauss, hearing about Newton's discovery from someone he met at a party, was so upset by the thought of a killion that he made up his own numbers, called Gaussian numbers. These were numbers that could get big, but not that big. Unfortunately, Gauss's brave attempt to develop a risk-free numerical system wound up on the scrap heap of failed theories. In the early twentieth century, Albert Einstein made some calculations that brought him right to the very threshold of the killion. But here even Einstein halted. Probably the smartest scientist who ever lived, Einstein also had a great, abiding affection for life. After the invention of the computer, it was Einstein who insisted that each one be equipped with a governor that would shut it off automatically if it ever approached a killion. Were it not for Einstein's farsightedness, the dawn of the computer age might have had frightening consequences for mankind.

So what went wrong in the affair of Marcie Chang's deadly paycheck? Why did the network computer, running a routine payroll program, make an error that no computer had ever made before? To understand this question, it is important to understand how a computer works. People unfamiliar with computers sometimes find it helpful to think of them as fairly goodsized, complicated things. Computers range in size from as small as a motel ice bucket to as large as an entertainment complex like New Jersey's Meadowlands, including the parking lot. Inside, a computer will have a short red wire hooked to a terminal at one end and to another terminal at the other end. Then there will be a blue wire also hooked to terminals at either end, and then a green wire, and then a yellow wire, then a orange wire, then a pink wire, and so on.

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BENCHMARKS

This particular computer was so big that when expert technicians began to disassemble it to find out what was the matter with it, they soon had more wires, terminals, and other parts lying around than they knew what to do with. The technicians spread the parts all over the floor of an unused equipment shed, and finally they found one that they identified as the governor—the little safety device that could trace its lineage back to Einstein's terrifying vision on that rainy February afternoon in Munich so many years ago. When they examined it closely, they discovered the problem. It was completely covered with gray stuff, kind of similar to the gray stuff that collects on rotary hot-dog grills. There was so much gray stuff that the little armature that was supposed to fit into a V-shaped groove on this other armature couldn't fit in at all. No one knew where the gray stuff could have come from, so there was nowhere to fix the blame. That did not change the fact that a small amount of gray stuff you could blow from your palm with one light breath had cost twelve lives.

In the aftermath of the tragedy, many people asked, "How can such tragedies be prevented in the future?" Well, you could give your paycheck to the bank teller every week without looking at it—taking such risks is what bank tellers are paid for. But then you would never know how much money you had. You could move to a country where people have never heard of computers. But that might be awfully far away, and it might be years before you felt comfortable there. You could vacuum computers at least three times a week to remove any foreign matter. But, on the other hand, what if it didn't work?

One hard, indisputable truth remains: There is nothing anybody can do about the killion. It is not a person, or a product, or an institution, and so need answer to no one. It will always be out there, in the far range of mathematics, where space bends and parallel lines converge, and I don't know what all. In the end, the best you can really do is hope that if the killion gets anyone, the person it gets won't be you.

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BENCHMARKS

MAY, 1985

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